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ABSTRACT

A study was conducted at Florence-Darlington Technical College (FDTC) in South Carolina to assess the college's admissions testing program through a review of the current literature on placement testing and a statistical study comparing currently employed instruments, i.e., the Career Planning Program (CPP) test and the Scholastic Aptitude Test (SAT) and a battery of tests developed in-house by FDTC faculty members. The literature review found: (1) studies had mixed findings about the effectiveness of scholastic ability tests as predictors of course grades or freshman grade point average (GPA); (2) some studies showed significant gains in retention and GPA for students who were tested and placed in courses meeting their skill needs; (3) locally developed instruments were more often used than any single published instrument in all areas but reading; and (4) there is a national trend linking assessment to quality of education. The second component of the study was the field testing of the in-house developed battery of tests, consisting of a two-section English test of sentence structure and language usage; a 100-item multiple-choice mathematics test used to measure numerical skills; and a reading test used to measure vocabulary and reading comprehension. Test scores were correlated with students' first-quarter GPA. The results of the field testing indicated that student success was best predicted by the SAT; that a moderate correlation was indicated for the in-house tests; and that the lowest correlation was with the CPP. (EJV)

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Evaluation of Admission and Placement Testing at Florence-Darlington Technical College

by

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submitted to:

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The Problem

Florence-Darlington Technical College is a two-year technical college serving as a technical/community college for the Pee Dee region of the state of South Carolina. Title III funds have been awarded to the college in order to improve the quality of education and services provided to students. One of the major objectives of the project is to research and, subsequently, improve the admissions' testing entrance program. This report discusses the use of standardized placement testing for improved guidance for the entering student.

Two aspects of the project will be considered, namely: (1) a review of current literature on the subject, and (2) a statistical study comparing currently employed instruments and a proposed in-house, developed battery of tests. Similar studies have been conducted by other two-year community colleges (Losak, 1982; Ozaki, 1978; Reep, 1979; and Rounds, 1984). The development and use of in-house placement tests is well documented in the literature (Roueche & Snow, 1977; Barshis, 1979; Rounds & Anderson, 1985; Douglass, 1982; Swofford, 1973; Helen & Chand, 1983; and Roueche, 1983).

Conceptual Foundation

The college employs the Career Planning Program (CPP) test for placement of students into the various curricula. For the nursing and radiologic technology programs, the Scholastic Aptitude Test (SAT) is required for entrance. The faculty, over the past several years, has questioned the validity of using the CPP as a placement and diagnostic

instrument, since their attrition rate for students is unusually high. Accountability measures imposed by the state legislature and administration have led to increased faculty concern with this problem. The college decided to investigate this situation further and applied for a federal grant in order to fund the research effort. Several ambitious faculty members took the initiative to develop a battery of tests for placement and diagnosis of entry-level students to the college. Release time was issued to these faculty members out of the grant funds to develop, field-test, and implement these in-house tests as a part of the admissions' process.

Most prospective high school graduates coming from the college's local service area are required to take the CPP, while in high school. This test is administered to high school students in the 10th and 11th grades. Therefore, as a matter of convenience, the college adopted the CPP as the general test for admission to the college, although SAT scores are also listed in the catalog for all 27 curricula. This practice is in question and a correlation study will be performed to determine the predictive ability of the various test instruments. A review of the literature has revealed that the problem is not confined to Florence-Darlington Technical College but is a national issue and most other community colleges face the same dilemma. During the 1980's, community college leaders are likely to encounter numerous issues relating to standardized testing and placement of students. Some key issues surrounding testing are: (1) national criticism of

standardized test; (2) mixed research findings on the effectiveness of testing; (3) accountability; (4) open-door policy of community colleges; (5) institutional attrition rate; and (6) diversity of testing (Tripp & Todd, 1982).

The question now to be addressed is, how effective are scholastic ability tests as predictors of course grades or the freshman grade point average. A review of the literature shows that the results are mixed. Standardized tests such as the SAT and ACT have been shown to have a moderate correlation with student success as measured by grade point average (GPR) in some studies. Yet, other studies concerned with two-year college students have not shown similar results. Two-year colleges tend to have larger populations of lower socio-economic clientele (Schade, 1977). Therefore, demographic data will be considered in the study as well.

Review of the Literature

The American Dream has, from the early days of the Republic, placed great faith in education as the open door to individual opportunity. Free access to the commmon school, later to the high school, and more recently to higher education, has symbolized the reality of the democratic ideal (Hoy, 1969). Since the late nineteenth century the idea of the community "Junior" college was to serve the masses or to be known as the people's college (Brubacker & Rudy, 1976). The concept is to provide a place for the low-achievers with lower economic status that could go to collge in a two-year institution.

In the early 1960's, encouraged by the Carnegie Commission, two-year colleges adopted an "open door" policy admitting all high school graduates and others that qualified. This was a further attempt by higher education in America to advance the democratization of service to all the people. The open door policy and admission testing criteria seem to be contradictory. The literature, however, does not substantiate this hypothesis. On the contrary, research shows that testing is vital and necessary in order to have a responsible and fair entrance procedure. Two-year colleges are important alternative routes to success for a large segment of our population lacking access to four-year colleges. This group may be limited by factors, including poor secondary school performance, low scholastic aptitude scores, financial constraints, or limited expectations. Junior colleges must have a thorough understanding of their students, goals, outcomes, and methods (Richards & Casey, 1979).

During the late 1960's, students argued for more access, fewer tests, more opportunities to make their own decisions. Many schools retreated from stringent entrance requirements. This retreat, coupled with the open door philosophy of community colleges led to the concept of the "students right to fail". In reality the "right to fail" became prophetic. We, in fact, doomed many students to failure. In the recent past, it has not been uncommon for 50% or more of those who began a class to disappear before the class was over (Rounds & Anderson, 1984).

So it has been stated that the student has the right to fail, but this was predicated on the premise that the adult student had all the necessary information about the course requirements and contents to make an informed decision. According to Dr. Hagemeyer, president of Central Piedmont Community College, "We should do one of two things: devise a way to provide that information or enforce the prerequisite policy" (Hagemeyer, 1982). One prime example of this is Miami-Dade Community College, which for twenty-one years has followed an open-door policy, but has become more restrictive in admissions requirements (Tripp & Todd, 1982).

An increasing number of studies show signicant gains in retention and GPA data for those students who were tested and placed in courses meeting their skill needs. Much of the success of a community college with an open door policy depends upon the college's success with students with educational deficiencies or a history of low achievement. If the open door is not to become the unfortunate revolving door, community colleges must continuously look for innovations or instructional strategies to better direct students into remedial programs (Swofford, 1973). There is a great variety in the method of placement and almost every school indicates a desire for better methods, but the list of tests being used is wide and varied. Diversity suggests one of two things, either no one has the answer or each college is truly distinct and needs to develop its own locally normed instruments to be most effective in student placement.

In a study performed in the California Community College System, with 106 colleges participating, locally-developed instruments were more often used than any single published instrument in all areas except reading. Of the published instruments, the ACT and SAT were mentioned far more often than any other instruments. The CPP was used by only 8% of those questioned and responding (Rounds & Anderson, 1984).

At Reedley Community College in California, in 1973, a study was performed comparing the Comparative Guidance and Placement Program (CGP) test to the ACT and the SAT. The results revealed, for practical purposes, there are no significant differences, indicating that the CGP can do as good a job screening for placement as can the ACT or SAT (Clark, 1973).

In a survey of California Community College taken in 1973, performed by Robert Clark, eight out of forty-eight colleges indicated use of the CPP and only three reported satisfaction. Of the three largest tests in use, ACT and SAT show about 33% satisfaction. It seems that no great percentage of responding colleges have found a program that is the answer. Some reported that standardized tests did not correlate with student's ability to write (Clark, 1973).

During the past five years, an extraordinary change has overtaken education, linking assessment to instruments in a manner reminiscent of the period of the 1920's. Thirty-seven State legislatures have decided that minimal skills are needed to graduate from high school and have offered assessment programs as a solution. The clear assumption is

that there does exist a strong relationship between assessment and quality of education. This trend is heading full force towards two-year colleges. Florida and a few other states have mandated testing. It is the purpose of this presentation to suggest that the spin-off effect of assessment may indeed impact quality, and testing may describe, or analyze, or monitor, but does not directly improve quality (Losak, 1982).

No matter how well the assessment program is designed, it is useless unless the information that it yields allows accurate decisions to be made about student placement (Baker & Painter, 1983). The past few years have seen many community colleges returning to mandatory testing and placement of students into courses and programs where they have a reasonable expectation of succeeding (Cohen, 1984).

Programs that only use a placement result without performing follow-up testing usually end up "shooting in the dark" in their approach to what areas of a discipline need to be addressed for each student (Grant & Hoeber, 1978). Also, instruments that are utilized for placement and diagnosis for which reliability, validity, and objectivity have not been demonstrated are a disservice to the student and the college.

Placement testing has less noticeable impact on quality, but some of the indirect implications are as follows. Faculty may have fewer students in the regular classrooms who are underprepared if the placement testing provides identification of the very lowest achievers and the curriculum also provides for remedial classroom work.

Indirectly then, admission to the classroom is impacted in quite the same manner as an admissions test does for entrance to the college. Placement testing in no way assures the quality of the students at the institution as a whole, nor does it do any more than merely describe deficiencies. In some quarters, one hears that placement testing is improving quality. This is stretching the indirect relationship in as much as the quality must be built into classroom instruction after the students have been described as having various levels of academic preparedness (Losak, 1982).

Procedures

One of the main procedures used to examine the problem was a complete literature search including recent articles, publications, textbooks, and an ERIC search performed by the library at Florence-Darlington Technical College. The second procedure is the field testing of the in-house developed battery of tests and a correlation study comparing the results of the various tests with the student's GPR at the end of the first quarter. Many studies in the literature were performed on the same basis as the reported study.

To accomplish the purpose of this study, at the beginning of the Fall Quarter of 1985, all freshman entry-level students already accepted into programs, were invited to participate in the evaluation. Each student filled out a general information sheet with demographic data. Later, test scores of either CPP or SAT tests were compiled

along with the student's GPR for the first quarter. This data was placed in a large data base and the Statistical Analysis System (SAS) program was used to make the necessary correlations. This analysis is in accordance with Hopkins and Stanley, (1981). Rigorous statistical procedures were utilized to gather the data according to acceptable research standards. The results of this study will be illustrated in the finding's section of this report.

A brief description of the tests themselves is in order. The Career Planning Program (CPP) test is a multi-part test designed to evaluate the student's ability in language usage, reading skills, and numerical skills. The CPP is typically administered in 1-1/2 hours. It is used to identify career options for prospective students. The Scholastic Aptitude test (SAT) is a multiple-choice test requiring 2-1/2 hours to administer. The SAT provides three scores: verbal, quantitative, and total scores. The SAT is designed to measure general abilities developed over a lifetime.

The in-house test consists of namely: (1) a two-section English test composed of sentence structure and language usage; (2) a 100-item multiple choice mathematics test (TEC-MAT) used to measure numerical skills; and (3) a reading test (TEC-READ) used to measure vocabulary and reading comprehension. These tests are all designed to be criterion-referenced so that placement decisions will be valid. Other statistical measures have been employed to measure the reliability and objectivity of these instruments.

Findings

As pertaining to the literature search for this problem, the data seems to be inconclusive. As many reports support the use of standardized tests as predictors of student success as do not. Deficiencies in published tests have led many colleges to develop their own locally-normed criterion-referenced tests. The literature clearly states the high school GPA as the best single indicator of success. Coupled with standardized test scores the predictive ability was increased (Rounds & Anderson, 1985). One caution in the use of high school GPA comes from (Roueche and Archer, 1979), "they can be influenced by grade inflation and social promotion". They found little use of the high school GPA at the community college level.

An additional aspect is what is termed an "expectancy measure" to aid in predicting success, as measured by GPR performance, or a student's anticipated GPR as stated by Vroom's expectancy model. In fact, addition of expectancy measure to one of scholastic aptitude resulted in a prediction of college GPR that was statistically more valid than that afforded by the scholastic measure alone (Mallock & Michael, 1981). This expectancy is very controversial and may be deemed discriminatory if pursued in the courts and is not used to any great extent. The conclusions of the literature review reveal mixed results. One fact is clear, however, the first student personnel challenge faced by community colleges is placement. How do we get our diverse students into the right places in the curriculum? (Douglass, 1982). Meanwhile, the search for the "perfect" instrument goes on.

The results of the field testing of the in-house test battery indicate that correlation for student success as measured by end of first quarter GPR in all three areas of English, mathematics, and reading is best predicted by the SAT. (See Tables 1, 2, 3). A moderate correlation was indicated for the in-house test with the exception of the engineering reading scores. The lowest correlation, as expected, was with the CPP test. The CPP test is less likely to enable an admission's counselor or advisor to guide a prospective student into a program where he/she is probably going to succeed. All reported data was significant at $\rho \leq 0.05$ significance level except for the engineering reading correlation values. These low figures indicate either error in the test itself taken by the engineering students, or a lower than necessary sample of students from the engineering curricula. A longitudinal study for one or two more years would be more conclusive. The results of this experimental study are not significantly different than those of similar studies reviewed in the current literature that showed positive correlation results.

Implications and Significance

Standardized tests are the most widely visible indicator of education. Almost two million (2,000,000) students take either the SAT or the ACT annually. About 90% of the students enroll in four-year institutions. Therefore, the actual use by two-year colleges is taken up in the remaining 10% of the students (Preer, 1983). The two-year college is not necessarily the best place to employ these major tests

TABLE 1

ENGLISH TESTS VS. GPR

(Pearson "r", N)

	Number Of Students	GPR
CPP-ENG	163	0.275*
SAT-VERB	113	0.533*
Sentence Structure	189	0.440*
English Usage	191	0.398*

*$\rho \leq 0.05$

TABLE 2

MATH TESTS VS. GPR

(Pearson "r", N)

	Number Of Students	GPR
CPP-NU	163	0.317*
SAT-MATH	113	0.352*
TEC-MAT	221	0.369*

*$\rho \leq 0.05$

TABLE 3

GPR VS. READING TEST CORRELATION

(Pearson "r", N)

	Number Of Students	GPR
CPP-RDG	N = 163	0.226*
SAT-VERB	N = 113	0.532*
TEC-READ:		
BUS VOC	N = 84	0.347*
BUS COMP	N = 84	0.478*
ENG VOC	N = 24	0.276
ENG COMP	N = 24	-0.107
GEN VOC	N = 22	0.789*
GEN COMP	N = 22	0.469*
HEA VOC	N = 43	0.520*
HEA VOC	N = 43	0.626*
IND VOC	N = 31	0.519*
IND COMP	N = 31	0.424*

*$\rho \leq 0.05$

for several reasons. One reason is that most students taking the SAT or ACT are planning to go to four-year colleges. Secondly, the cost may be a deterrent to some students of lower economic status, otherwise headed for two-year colleges.

Another aspect is that pressures from State legislatures on high school administrators may backlash, causing lower overall SAT or ACT tallies for them, thus, resulting in less cooperation from high school guidance counselors with two-year colleges. In our history, the community college's mission has been to provide a place for students not able to go to four-year colleges. Should we be high-minded and try to look more like a senior institutions, we may face lower enrollments and loose the confidence of those who now support us with students and revenue.

Recommendations

The following recommendation seems appropriate in view of the findings of this study:

(1) Continue the environmental scanning practice by continually reviewing current literature on the subject of admission testing in two-year community colleges. This process may yield significant trends that surface and require adjustments in philosophy and practices.

(2) Follow up the initial field testing with a longitudinal study of the in-house developed tests for a minimum of one more year (longer, if feasible) in order to substantiate the previous findings.

(3) Should further study be conclusive, the use of the in-house tests is recommended and the CPP test should be abandoned. The SAT should be continued as an entrance test in nursing and the radiologic technology programs. Listing and acceptance of SAT scores for other programs should remain only as an alternate means of entrance requirement in the event a student headed for a four-year college decides to go to the college and has already established SAT scores.

(4) Consideration should be given to employing the SAT as a measure for entrance into the engineering programs, especially in the event that in-house reading scores are similar, in subsequent field testing, to that of the initial evaluation.

(5) Measures for remediation programs should be expanded to ensure that the students' level of preparedness is adequate before acceptance into curriculum courses.

(6) High school GPA's should not be used to determine eligibility to programs.

(7) Since Florence-Darlington Technical College is a state supported institution, expectancy measures should not be employed on the basis of potential discriminatory actions that may result.

(8) Any changes in testing policy should be well publicized to the community and, more specifically, to high school guidance counselors and superintendents well in advance, so that they will have ample time to advise prospective students of these changes.

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